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10/623 493
Jan 14 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jeremy RUSSELL

Serial No. 10/623,493

Filed: July 22, 2003

For: LARYNGEAL MASKS



Art Unit:

Examiner:

Atty Docket: 0119/0022

SUBMISSION OF PRIORITY DOCUMENTS

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto please find a certified copy of applicant's United Kingdom application No. 0218631.0 filed August 10, 2003.

Applicant requests the benefit of said August 10, 2003 filing date for priority purposes pursuant to the provisions of 35 USC 119.

Respectfully submitted,

Louis Woo, Reg. No. 31,730
Law Offices of Louis Woo
717 North Fayette Street
Alexandria, Virginia 22314
Phone: (703) 299-4090

Date: Jan 14 2004





INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

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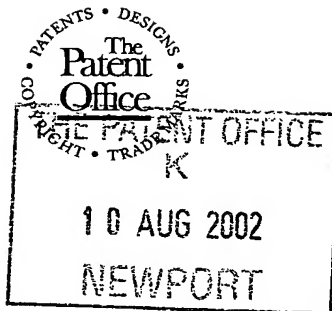
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Signed

Stephen Hordley

Dated

22 July 2003



12AUG02 E740168-1 C26047
P01/7700 0.00-0218631.0

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0200240

2. Patent application number

(The Patent Office will fill in this part)

0218631.0

3. Full name, address and postcode of the or of each applicant (underline all surnames)

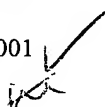
SMITHS GROUP PLC
765 FINCHLEY ROAD
LONDON
NW11 8DS

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8032310001

GB



4. Title of the invention

LARYNGEAL MASKS

5. Name of your agent (if you have one)

J. M. FLINT

"Address for service" in the United Kingdom to which all correspondence should be sent

(including the postcode)

765 FINCHLEY ROAD
LONDON
NW11 8DS

Patents ADP number (if you know it)

1063304001



6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
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Patents Form 1/77

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Description 4

Claim(s)

Abstract

Drawing(s) 2 + 2A

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Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

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Signature

Date 9 Aug 2002

12. Name and daytime telephone number of person to contact in the United Kingdom J. M. FLINT 020 8457 8220

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LARYNGEAL MASKS

This invention relates to laryngeal masks.

Laryngeal mask airways are used to ventilate and to supply anaesthetic gas to a patient during surgery. Laryngeal mask airways differ from endotracheal tubes, which extend into the trachea and terminate beyond the vocal folds. By contrast, laryngeal mask airways have a tubular shaft opening into the centre of a generally elliptical mask or cuff, which is inflated to seal in the region of the hypopharynx, at the top of the trachea. The cuff is inflated with air supplied along a small-bore inflation line communicating with the interior of the cuff. Laryngeal masks are described in, for example: US 5355879, US 5305743, US 5297547, US 5282464, GB 2267034, US 5249571, US 5241956, US 5303697, GB 2317830, GB 2249959, GB 2111394, EP 448878, US 4995388, GB 2205499, GB 2128561, GB 2298797, GB 2321854, GB 2334215, GB 2323289, GB 2323290, GB 2318735, GB 2330312, WO 01/13980, EP 1207927, GB 2337020, GB 2334215, GB 2331932, GB 2354950, GB 2359996, GB 0201958.6, GB 0201094.0 and GB 0127184.0.

Because the patient end of the laryngeal mask is relatively large and the rear surface of the mask needs to be slid along the posterior wall of the pharynx for introduction it is usual to lubricate the mask in some way. Where the mask is of silicone rubber it is often lubricated by spraying it with water, which wets the material to make it slippery. Where the mask is of PVC and other materials it may be lubricated by smearing a lubricating jelly over the surface of the mask just before insertion.

It is an object of the present invention to provide an alternative laryngeal mask.

According to one aspect of the present invention there is provided a laryngeal mask airway having a mask portion at least of a polymeric material, at least the posterior surface at the patient end of the mask portion being coated with a hydrophilic material such that the rear surface at the patient end becomes slippery when wetted, either in the patient or after treatment with an aqueous medium.

The polymeric material is preferably PVC.

A laryngeal mask airway according to the present invention, will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the airway; and

Figure 2 is a sectional side elevation view of the airway;

The airway includes a curved tube or shaft 1 of PVC having a channel 2 in the form of a groove extending along its length on its outside surface and on the inside of its curve. The shaft 1 is preferably made by extrusion or moulding and may be reinforced by means of an embedded helical element, such as of metal or plastics. At its patient end 3, the shaft 1 is attached to a mask portion 5.

The mask portion 5 comprises a mount member 50 of a relatively stiff but compliant PVC and an inflatable cuff 60, also of PVC, attached to the mount member. The mount member 50 is hollow and of generally shoe shape, having a tubular extension or collar 51 at its upper or posterior side located at the rear, left-hand or machine end of the mount. The patient end 3 of the shaft 1 is bonded into one end of the collar 51. The other end of the collar 51 opens into a central recess or atrium 54 within the mount 50. The internal, anterior surface of the roof 40 of the atrium 54 is arched transversely but is substantially straight, or is slightly concave, along its longitudinal centre line. The roof 40 is uninterrupted by any surface projections or formations that would impede free movement of the epiglottis over the roof. Viewed in plan, the mount 50 is oval with its lower or anterior side 53 lying on a flat plane extending at an angle of about 30° to the axis of the patient end 3 of the collar 51. A channel 55 in the form of a groove extends along the inside of the mount member 50 in line with the groove 2 along the shaft 1 and this opens through a hole 56 into the cuff 60.

The cuff 60 may be of any conventional form, such as described in GB 2323291 or GB 2321854. The cuff 60 is only shown schematically in the drawings but is of annular, elliptical shape, being attached to the forward end surface 53 of the mount member 50 and having a central opening 61 into the atrium 54. The cuff 60 is of a thin, flexible plastics material so that it can be deflated to a low profile for insertion and can be inflated to seal with surrounding tissue when correctly positioned.

In general, the patient end of the tubular portion 1 is located to the rear of the rear side 62 of the opening 61, that is, on the side towards the machine end of the airway, and is preferably located approximately midway across the width of the sealing cuff. Instead of the

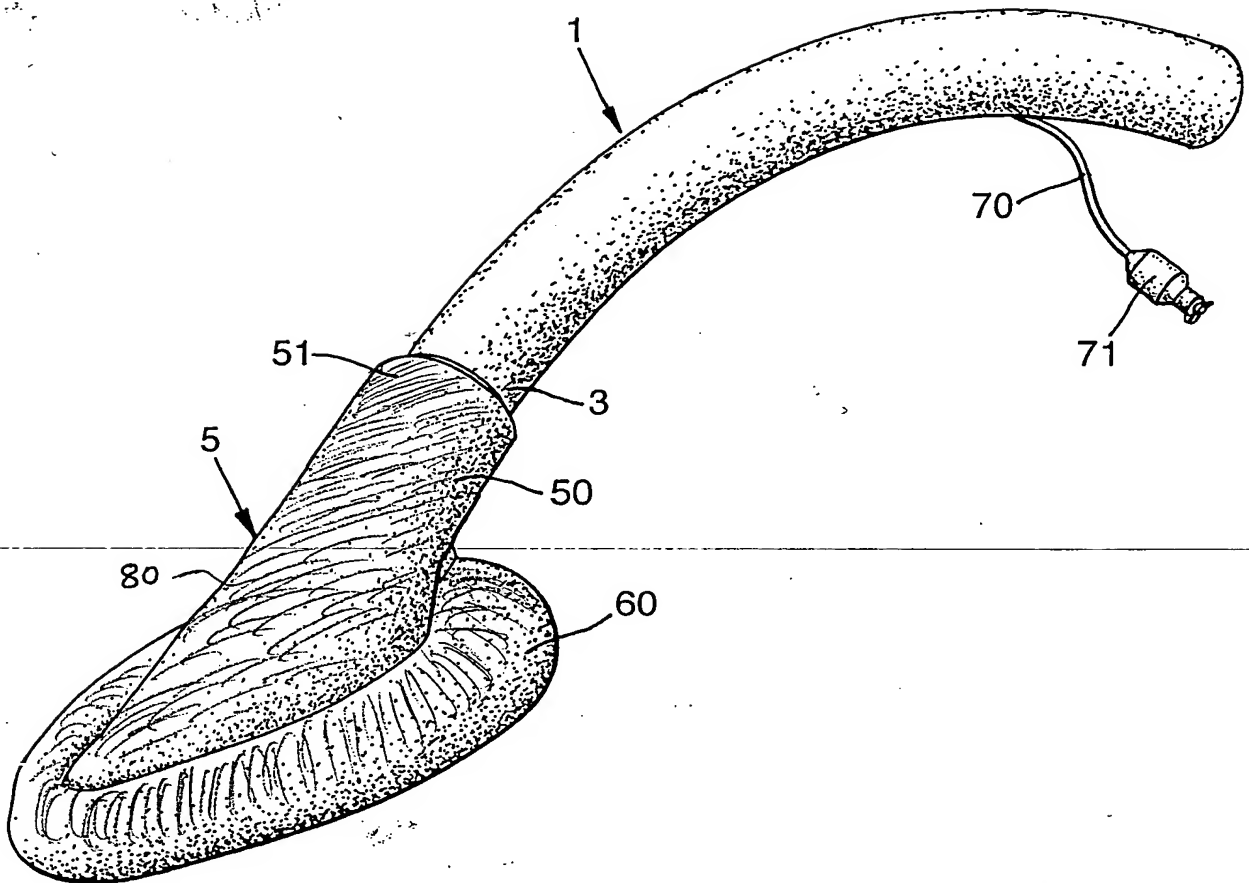
tube and mount being separate components, they could be provided by one integral moulded component, with the location where the tubular portion increases in internal diameter being regarded as the patient end of the tubular portion.

The cuff 60 is inflated and deflated by means of an inflation line 70 in the form of a small-diameter flexible plastics tube extending along the groove 2 in the shaft 1.

As so far described, the laryngeal mask airway is conventional. The mask also includes a coating 80 of a hydrophilic material such as polyvinylpyrrolidenes, polyurethanes, polyvinyl alcohol, polyethylene glycol and other polymers and copolymers. The coating 80 extends over at least the posterior surface of the airway at its forward end. In particular, the coating 80 extends over the posterior surface of the mount 50 and the cuff 60, that is, the surfaces that contact the posterior wall of the pharynx during insertion. The coating could, instead, be applied to the entire airway. The coating is applied to the airway during manufacture so that the airway is supplied coated to the user. Just before use, the user sprays the patient end of the airway with water so that the coating 80 is wetted and becomes slippery or lubricious. This allows the airway to be slid easily into position without the need to use a lubricating jelly. It may not be necessary to wet the airway before insertion because the coating will become hydrated by moisture in the patient.

It will be appreciated that various different forms of coating could be used. The coating could be applied to the entire surface of the airway although it is only necessary to apply the coating to those surface that slide over patient tissue during insertion. The shaft and mask portion need not be of PVC but could be of other polymeric materials.

Fig.1.





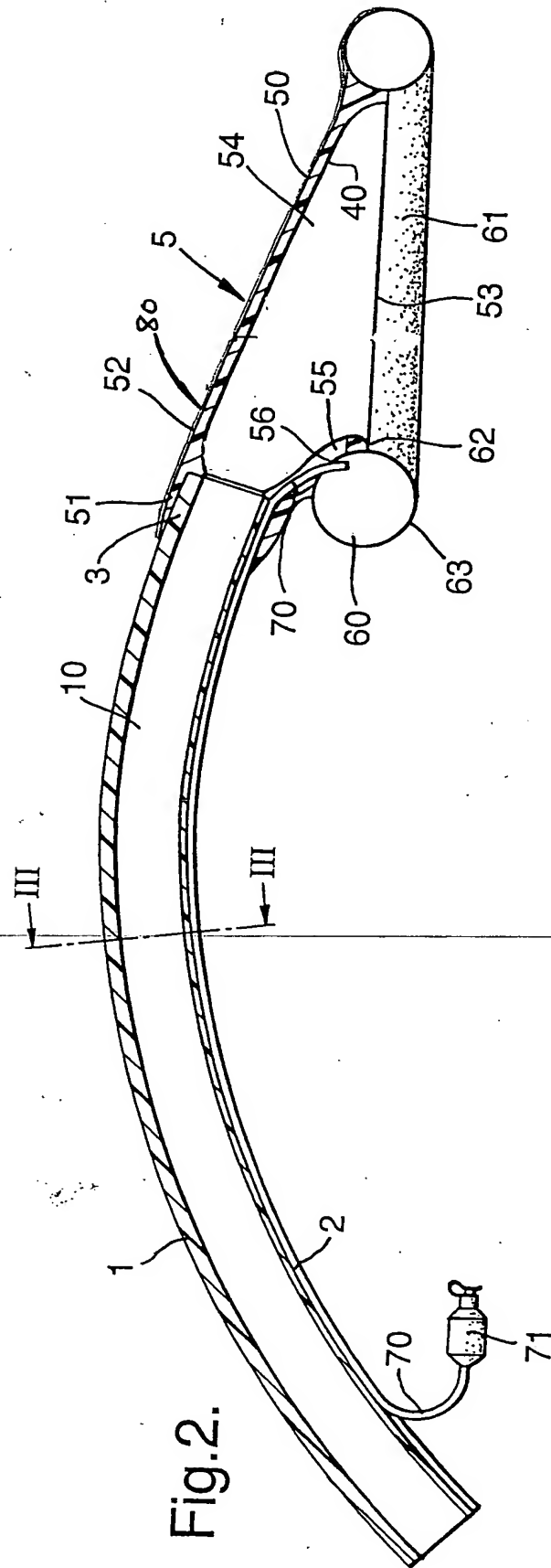


Fig. 2.

